

***DASYMUTILLA PHOENIX* (FOX), A NEW
SYNONYM OF *D. FOXI* (COCKERELL)
(HYMENOPTERA: MUTILLIDAE)**

DONALD G. MANLEY

Department of Entomology & Economic Zoology, Clemson University,
Clemson, South Carolina 29631

The species *Dasymutilla foxi* was first described by Cockerell (1894) in the genus *Sphaerophthalma* (sic) later transferred to the genus *Dasymutilla* by Mickel (1928). This was followed by a first description of the species *Dasymutilla phoenix* by Fox (1899). In reviewing the genus, Mickel (1928) stated that the two species are not different structurally from one another but that *D. phoenix* is larger in size than *D. foxi* and that the pubescence of the dorsum of *D. phoenix* is whitish as opposed to scarlet pubescence of the latter. Inclusion of the following biological evidence and a good series of specimens from the same location has led to the conclusion that *D. phoenix* should no longer be considered as a valid species but is, instead, a synonym of *D. foxi*.

Materials and Methods

A series of 129 specimens, including 85 females and 44 males (of which 8 pairs were taken *in copula*), were collected from a mating aggregation on Willow Springs Ranch, north of Tucson, Arizona (described separately by Manley and Taber, 1978). All were collected between September 18, 1976 and September 29, 1976. Of these, 31 specimens (16 females, 7 males, and four pairs taken *in copula*) have been deposited in the Entomology Museum of the University of Arizona and 98 (61 females, 28 females, plus 4 females and 5 males taken *in copula*) have been retained in the personal collection of the author.

All of the specimens collected were determined as belonging to the *D. foxi-phoenix* complex. All were active in the same area, at the same times. It seemed impossible to distinguish two species on the basis of behavior.

Results and Discussion

Since the major criteria for distinguishing these two as valid species have been coloration and size, these criteria were examined more closely in the laboratory. The following were found:

Males: Of 44 males that were collected, pubescence of the dorsum of the head and thorax of 43 was a smokey yellow ("dirty white"), with the abdomen being scarlet. On the remaining male, head, thorax and abdomen were all scarlet. The latter male was one of those taken *in copula*, and was coupled with a female having the smokey yellow pubescence on head and thorax, and scarlet abdomen. Males ranged in length from 8 mm to 13 mm.

Females: There was considerably more variation in color among the females. The continuum ranged from smokey yellow to scarlet. The color variation has, however, been categorized for descriptive purposes. The pubescence above for the majority (61) of the 85 females was smokey yellow (head, thorax, and abdomen). Of the remaining 24, 23 had head and thorax colored smokey yellow. Of those, the abdomens of 7 were of an orange-yellow color, 6 were orange, 4 were a red-orange, and 6 were scarlet. Pubescence of the dorsum of the remaining female was entirely scarlet (head, thorax, and abdomen). Length in the females ranged from 7 mm to 12 mm and seemed to be entirely independent of color.

If these were separate species, one would expect to find more individuals with the colors of the two extremes, with only a few intermediates. The actual situation was one of many more individuals with the smokey yellow pubescence of *D. phoenix*, with a few variants ranging all the way to the scarlet extreme. It is thus concluded that the two should be considered as one species, *D. foxi*, with the updated synonymy being as follows:

Dasymutilla foxi (Cockerell)

Sphaerophthalma (sic) *foxi* Cockerell 1894:199. ♂

Sphaerophthalma (sic) *heterochroa* Cockerell and Casad 1894:298. ♀

Mutilla phoenix Fox 1899:247. NEW SYNONYM. ♀

Sphaerophthalma (sic) *foxi* var. *arizonica* Cockerell 1900:65. ♀

Dasymutilla foxi Mickel 1928:84. Sex not stated.

Dasymutilla phoenix Mickel 1928:85. Sex not stated.

Literature Cited

- Cockerell, T. D. A. 1894. Descriptions of new Hymenoptera. Entomol. News, 5:199.
 Cockerell, T. D. A. 1900. New insects from Arizona, etc. Entomologist, 33:65.
 Cockerell, T. D. A., and J. B. Casad. 1894. New species of Mutillidae. Entomol. News, 5:293-98.
 Fox, W. J. 1899. American Mutillidae. Trans. Am. Entomol. Soc., 25:247.
 Manley, D. G., and S. Taber, III. 1978. A mating aggregation of *Dasymutilla foxi* in Southern Arizona. Pan-Pac. Entomol., 54:231-235.
 Mickel, C. E. 1928. Biological and taxonomic investigations on the mutillid wasps. U.S. Nat. Mus. Bull., 143:84-87.